

REMARKS

A Restriction Requirement was mailed in the present case on May 18, 2006, requiring restriction between method Claims 4-9 and apparatus Claims 1-3 and 10-16 . Applicant elected to prosecute apparatus Claims 1-3 and 10-16 in this case, without traverse. The present Office action was mailed on May 18, 2006, making a response due on or before August 18, 2006. Since this response is being timely submitted, no further fee is thought to be due at this time. If any additional fee is due for the continued prosecution of this application, please charge the same to Applicant's Deposit Account No. 50-2555 (Whitaker, Chalk, Swindle & Sawyer, LLP).

The Assignee of the present invention, Scot Industries, Inc., of Lone Star, Texas, specializes in various types of chrome plating applications. Scot Industries is one of the few companies in the United States with facilities capable of plating lengths of pipe ranging from 1 to 20 inches in diameter and up to 56 feet in length. Because of this unique capability, Applicant realized the solution to a long felt need in the concrete pumping industry. Concrete pump delivery systems, such as those having a mobile delivery system with an adjustable boom structure, are used in a large variety of construction applications. For example, these pump trucks may be involved in high rise building construction where concrete is being pumped through booms to heights of 1200 feet or more.

The industry standard piping used for such applications is typically 10 feet in length with a diameter of 5-6 inches. The piping may be ordinary steel provided with special couplings, or may be a pipe with the inside hardened to reduce wear by heat treatment or other means; or be a hard tube inside another tube. Concrete pumping is a very high pressure environment with pressures of 2000-3000 psi being typical and is highly abrasive. The ordinary steel pipe has an effective service life for about 15,000 yards of concrete pumped through the piping and the hardened piping lasts for about 35,000 yards of pumped concrete. Hardening of the steel pipe is generally recognized as being desirable in order to extend the useful life of the piping.

However, there are limits upon the types of metals which can ultimately be used. For example,

because of the high pressures encountered, concrete pumping requires a pipe having a very high tensile strength to operate satisfactorily over long periods of time. Additionally, it would be advantageous to be able to provide a pipe having improved abrasion resistance which did not add greatly to the weight characteristic of the pipe. Weight impacts the distance that the piping boom is ultimately able to extend. In the case of fixed piping installations, weight impacts the amount of piping which can be hauled to a job site. In some cases, manual handling of the pipe sections is required.

Applicant's chrome plating abilities provided a mechanism for achieving greatly extended pipe life in piping used for concrete pump delivery systems, while at the same time allowing the pipe wall thickness to be decreased, thereby reducing the overall weight of the piping boom structure. To the best of Applicant's knowledge, no one else in the industry has used chrome plating as a solution to the problem of abrasion resistance in piping of the type used in concrete pump delivery systems. This is probably due at least in part to the difficulty in plating pipes on the order of 10 feet in length and 5-6 inches in diameter.

The Examiner has also initially rejected Applicant's Claims 1-3 and 12-16 under 35 U.S.C. 102(b) as being anticipated by Wilmeth (U.S. Patent No. 5,196,108). The Examiner basically argues that the Wilmeth patent teaches a method of improving abrasion resistance of a section of piping for use in a pump delivery system of abrasive materials comprising providing a tubular metal body having an exposed exterior surface and a generally cylindrical internal surface. While the article being plated in the Wilmeth patent is an oil field sucker rod pump, the Examiner views Applicant's presently claimed method as merely being an "intended use" of such teaching.

In addition, the Examiner has rejected Applicant's Claims 10 and 11 under 35 U.S.C. 103(a) as being unpatentable over Wilmeth in view of Leland (U.S. Patent No. 3,886,053). The Examiner argues that the patent to Wilmeth discloses all of the recited structure with the exception of providing a step of smoothing by honing of the interior of the pipe. The patent to Leland is cited by the Examiner for the proposition that it is old and known in the art to provide a honing step to smooth the interior

of the pipe being plated with chromium.

Applicant has made a number of amendments to the claim language in view of the Examiner's remarks. For example, each of independent Claims 1 and 12 have been amended to more specifically describe the result of Applicant's chrome plating process to the concrete pump delivery system, namely "providing a tubular metal body of reduced wall thickness and therefore lighter weight which has abrasion resistance at least equal to industry standard piping for concrete pump delivery systems."


Further, independent Claim 12 has been amended to more specifically describe the concrete pumping system in terms of the fact that a "mobile delivery system" is employed including an adjustable boom structure. This language is intended to remove the Section 102(b) rejection, since the teaching of the earlier Wilmeth patent is directed to a component of an oil field sucker rod pump and is not directed to a "concrete pumping system." The sizing of the tubular metal body is also given more specifically in amended Claim 12 in order to better distinguish the sucker rod pump application described in the earlier Wilmeth patent. The sizing of the piping under consideration is of particular significance, as pointed out earlier, in that only two or three manufacturers even have the capability of chrome plating such size piping. This fact argues against the "obviousness" of the application of chrome plating to concrete pump delivery systems and the Examiner's Section 103(a) rejection. The sucker rod pump components would be much smaller, allowing a smaller plating bath to be utilized.

Applicant's amended claims are directed to a very specific industrial application, that of concrete pump delivery systems. Applicant realized that a chrome plating process could be used in such an application to provide tubular metal piping of increased abrasion resistance, thereby allowing the wall thickness and ultimate weight of the piping to be decreased. This allows longer booms to be utilized and reduces the weight required to be handled by workers. The chrome plated internal pipe diameters are also significantly easier to clean after use than were the prior art steel pipes. The increased wear resistance which is achieved in Applicant's process extends the useful life of the apparatus being employed.

While chrome plating processes certainly existed prior to Applicant's invention, no one in the concrete pumping industry conceived of the use of such processes to solve this particular longstanding problem. Applicant's solution to the problem saves money, time and labor. Applicant should accordingly be afforded patent protection commensurate with the scope of the present invention. Reconsideration of Claims 1-3 and 10-16 is respectfully requested in view of the above arguments and amendments to the claims.

Respectfully submitted,

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